



Access Control System

EXP-06E

Single Door Access Controller

Installation and Operation

Instructions

Version 6.6
Revision 2003-5

1. INTRODUCTION

The ACS Access Control System is a powerful software based time recording, access control and integrated security system designed to meet the most demanding access control and point monitoring applications. Programming the system is done from a cost effective IBM compatible microcomputer. Cards can be added or deleted in seconds. All events can be archived for future reference and report generation.

The system can control doors, turnstiles, gates and more. It can monitor different sensors such as intrusion motion detectors, door contacts, low temperature and can activate cameras or lighting controls automatically, unattended. The ACS access Control System provides user with much more than basic access control features. In its standard configuration, the system not only provides sophisticated features for the most demanding installation, but also complies with functionality and budgetary requirements.

For standalone system, the access controller contains the keypad with programmable functions. It can be used to define the cardholder information, time schedule for access of user, holiday definition and record printing.

For PC network system, RS485 and communication interface card can be used to link up the controllers to PC for direct accessing the update records.

2. Hardware Requirements

Computer :

CPU:	Pentium III 800MHz
Hard disk space:	500MB
RAM:	64MB
OS:	Windows 98SE English / Chinese version (big5 version)
Motherboard:	1 x RS232 port
Display:	SVGA 800x600 resolution color monitor with 16 bits color
Input Device:	Enhanced 101 keyboard and serial mouse
Floppy Disk:	1 x 3.5" high-density floppy disk drive
CD-ROM Drive:	1 x 8X CD-ROM Drive
Printer:	24pin dot matrix (360dpi)/laser jet (300dpi). Inkjet printer is not recommended. Users are highly recommended to use network printer.
Modem:	(For Wide Area Access) Hayes compatible 9600 baud rate.

3. EXP-06E Access Controller Configuration

I/O Capacities

IN Reader	-----	1
IN Keypad	-----	1
OUT Reader	-----	1
Electric Door Lock Output	-----	1
Auxiliary Relay Output	-----	1
Programmable Relay Output	-----	1
Parallel Printer Port	-----	1
Door Release Button Input	-----	1
Door Sensor Input	-----	1
RS232 Communication Interface	-----	1
RS485 Communication Interface	-----	1

Memory Capacities

Cardholders & Transactions	-----	16,000
Access Time Zone	-----	9
Pin Entry Time Zone	-----	3
Cardholder Authority Levels	-----	3
Holidays	-----	100
IN Reader	: Can be using LED Indication Lamp with Keypad	
OUT Reader	: Only LED Indication Lamp	

System Characteristics

Multiple Technologies:

Supports Proximity and Magnetic Stripe Card

Selectable Acceptance Entrance Mode:

Card Only, Pin Code Only, Card + Pin Code

Complete Standalone:

Do not depend on other equipment for operation and programming.

Distributed Data:

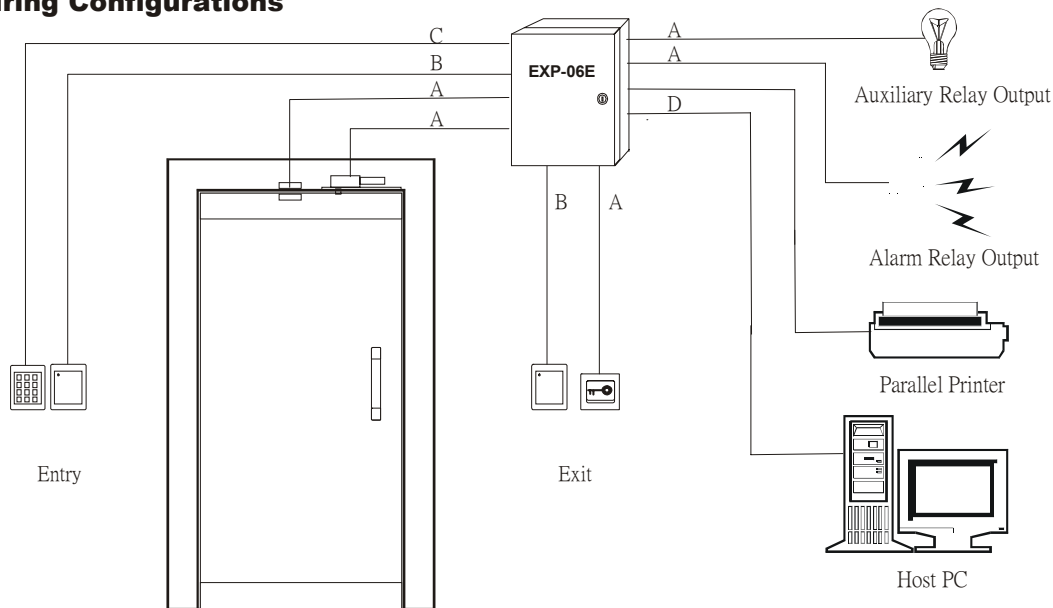
Memory and processing located at every door. No degraded mode.

Optional Remote Terminal:

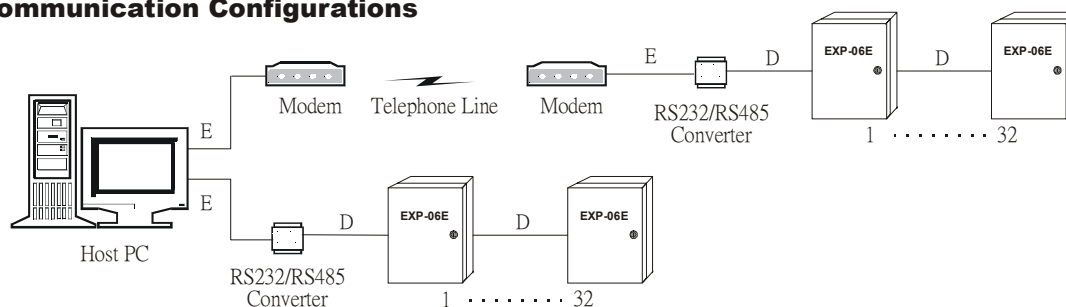
The optional remote terminal can be used for alarm monitoring and selected system commands. The terminal can be located a few away or across the country via modems.

4. CONFIGURARTION DIAGRAM

Wiring Configurations



Communication Configurations



Wire Label	From	To	Function	Gauge(AWG)	No. of Pair	Shielded	Max. Length (M)
A	EXP-06E	I/O Device	Control	24	1	Yes	150
B	EXP-06E	Reader	Reader Comm.	24	4	Yes	150
C	EXP-06E	Keypad	Keypad Comm.	24	4	Yes	8 /150 (EXP-02 Extension Module)
D	EXP-06E	PC	RS485 Comm.	24/22	2	Yes	1,200
E	EXP-06E	PC	RS232 Comm.	24	2	Yes	16

6. User Card Operation Procedures

6.1 Present Card Only

Place the card on the present card area. If the entrance is permitted, the proximity card reader will sound a long "beep". Then the door lock will be released with a certain time defined by supervisor. If prohibited, by "INVALID CARD" (Invalid Card Number) or "WRONG ACCESS" (Invalid Anti-Passback) or "WRONG LEVEL" (Invalid Access Time Zone) the proximity card reader will sound three sort "beep-beep-beep".

6.2 Present Card with Pin Code

If the entrance need to input pin code after the card presented, the proximity card reader's LED light will hold on 5 seconds to green color, user should key in 4 digits pin code through the keypad. If the pin code is correct, the proximity card reader will sound a long "beep". Then the door lock will be released with a certain time defined by supervisor. Otherwise, the proximity card reader will sound three sort "beep-beep-beep" for "WRONG CODE". For security reason, this operation can only be tried 7 times. After than access right will be terminated for this card only.

6.3 Single Pin Code Entry Only

At this operation mode, users can key in the card number through keypad instead of card operation. Press "#" key will enable this function if this operation is set. If user are allowed to entry the area by using Key Operation, the proximity card reader's LED light will hold on 5 seconds to green color, user should key in 8 digits card number assigned to the user. If the entrance is permitted, the proximity card reader will sound a long "beep". Then the door lock will be released with a certain time defined by supervisor. If prohibited, the proximity card reader will sound three sort "beep-beep-beep".

6.4 Double Pin Code Entry Only

At this operation mode, user can key in the card number and pin code through keypad instead of card operation. Press "#" key will enable this function if this operation is set. If user are allowed to entry the area by using Key Operation, the proximity card reader's LED light will hold on 5 seconds to green color, user should key in 8 digits card number assigned to the user. If the card number is "ACCEPTED", the proximity card reader's LED light should still hold more 5 seconds to key in 4 digits pin code. If the pin code is correct, the proximity card reader will sound a long "beep". Then the door lock will be released with a certain time defined by supervisor. If prohibited, the

proximity card reader will sound three sort " beep-beep-beep". For security reason, the key Operation can only be tried 3 times. After than the Key Operation will be terminated for this card only. Card operations then need to reset the termination.

6.5 Turn ON/OFF Control Relay by User Card with Pin Code

At this function mode, user must press "9" button in the keypad and hold it on and present the card. If this card user's "AUTHORIZE LEVEL" is allowed to operate this function, the proximity card reader's LED light will hold on 5 seconds to green color, user should release key "9" button in the keypad and key in 4 digits the current used pin code. If the card user is authorized and the pin code is correct, the proximity card reader will sound a long "beep". Then the control relay will be turn ON or OFF. Otherwise, the proximity card reader will sound three sort "beep-beep-beep" for "INVALID AUTHORIZE LEVEL" OR "WRONG PIN CODE".

6.6 Change Pin Code by User Card with Current Pin Code

User can change the pin code that is related to the card issued to him. At this function mode, user must press "0" button in the keypad and hold it on and present the card. If the information of the card is stored at data memory of the controller. the proximity card reader's LED light will hold on 5 seconds to green color, user should release key "0" button in the keypad and key in 4 digits the current used pin code. If the key in pin code is correct, the proximity card reader's LED should change to red color; user then is to ready key in 4 digits new pin code. The proximity card reader's LED should change to green color and user should key in same 4 digits new pin codes again for verification. If the verification pin code is correct the proximity card reader will sound a long "beep". Then the new pin code is started to active. Otherwise, the proximity card reader will sound three sort "beep-beep-beep" for incorrect verification by "NOT MATCH NEW PIN CODE". Then user is still using the old pin code.

6.7 Turn ON/OFF Control Relay by User Card with Duress Pin Code

If duress alarm function interfaced with alarm control panel, user can use this function for under duress active.

At this function mode, user must press "9" button in the keypad and hold it on and present the card. If this card user's "AUTHORIZE LEVEL" is allowed to operate this function, the proximity card reader's LED light will hold on 5 seconds to green color, user should release key "9" button in the keypad and key in 4 digits "Duress Pin Code. If the card user is authorized and the duress pin code is correct, the proximity card reader will sound a long "beep". Then the control relay will be turn ON or OFF and at the same time access controller send out a duress alarm signal to alarm control panel.

Otherwise, the proximity card reader will sound three sort "beep-beep-beep" for rejected active by "INVALID AUTHORIZE LEVEL" OR "WRONG PIN CODE".

Remark : Duress Pin Code is the current user pin code add one.

i.e. If the user pin code is 0001 then the duress pin code should be 0002.

6.8 Present Card with Duress Pin Code

If duress alarm function interfaced with alarm control panel, user can use this function for under duress access. At this function mode, user should place the card on the present card area, the proximity card reader's LED light will hold on 5 seconds to green color, user should key in "Duress Pin Code" through the keypad. If the duress pin code is correct, the proximity card reader will sound a long "beep". Then the door lock will be released and at the same time access controller send out a duress alarm signal to alarm control panel. Otherwise, the proximity card reader will sound three sort "beep-beep-beep" for rejected access by "WRONG CODE".

Remark : Duress Pin Code is the current user pin code add one.

i.e. If the user pin code is 0001 then the duress pin code should be 0002.

i.e. If the user pin code is 9999 then the duress pin code should be 0000.

6.9 Double Pin Code Entry for Duress Pin Code

If duress alarm function interfaced with alarm control panel, user can use this function for under duress access. At this function mode, user should key in the card number and duress pin code through keypad instead of card operation. Press "#" key will enable this function if this operation is set. If user are allowed to entry the area by using Key Operation, the proximity card reader's LED light will hold on 5 seconds to green color, user should key in 8 digits card number assigned to the user. If the card number is "ACCEPTED", the proximity card reader's LED light should still hold more 5 seconds to key in 4 digits "Duress Pin Code". If the pin code is correct, the proximity card reader will sound a long "beep". Then the door lock will be released and at the same time access controller send out a duress alarm signal to alarm control panel. Otherwise, the proximity card reader will sound three sort " beep-beep-beep" for rejected access by " WRONG CODE".

Remark : Duress Pin Code is the current user pin code add one.

i.e. If the user pin code is 0001 then the duress pin code should be 0002.

i.e. If the user pin code is 9999 then the duress pin code should be 0000.

7. INSTALLATION OF EXP-06E

7.1 Overview of EXP-06E

The EXP-06E has two-reader port and one keypad port, capable of handling three relay outputs. The EXP-06E is housed in a 16 AWG metal wall-mounted cabinet. The static RAM consumes minimal power for storing memory and data. The EXP-06E is compatible with PC using Access Control System.

The EXP-06E offers software- controlled features such as Time Zone, Key Zone, Holiday, Programmable Zone, Cardholders database and Anti-passback control.

The EXP-06E has two types of battery backup: onboard memory and operational power. The operational power battery, known as the Advanced Power Supply(APS), gives the EXP-06E internal power fail capability.

7.2 Physical Requirement

External devices connect to the EXP-06E via ports located on the right and left sides of the Connectors and the device types are listed in Table 1.1. See Figure 1.1.

The following table is External Devices Connectors

Devices	Connectors
In Reader	C1 (1-7)
Out Reader	C3 (1-7)
Keypad	C2 (2-8)
Alarm Relay Output	C4 (R,Q)
Programmable Relay Output	C4 (P,O)
Door Lock Relay Output	C4 (N,M)
Door Sensor	C4 (L,K)
Door Release Button	C4 (J,K)
RS-232 Communication Port	C4 (G,H,I)
RS-485 Communication Port	C4 (E,F)
Power Supply DC2, COM	C4 (A,B)
Event Printer Port	C5 PRINTER

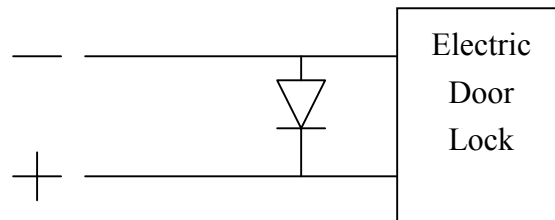
7.3 Equipment Wiring /requirement of EXP-06E

7.3.1 Readers (In/Out) & Keypad

1. Do NOT wiring with any other high power cable. E.g. 220V AC
2. Do NOT install near switches that produce large amount of spark. E.g. Light.
3. Choose linear power supply for the readers instead of switching power supply.
4. Follow the cable wiring specification by the manufacturer of readers.

7.3.2 Door Lock Relay Output (**IMPORTANT**)

1. Install diode parallel to the door lock.
2. ATTENEION: It may affect the performance of EXP-06E when diode is not installed parallel to the lock. See Figure 1.2.



7.3.3 Door Release Button & Door Sensor

1. Connect one end of the Door Sensor and one end of the Door Release Button together to connector pin K.
2. Use AWG 24 wire to connect the Door Release Button with EXP-06E.
3. Do NOT connect Door Release Button and EXP-06E over 50ft.

7.3.4 RS-232 & RS-485

Must use shield twisted pair wire to connect EXP-06E with host computer.

7.3.5 Switching Power Supply

Connect the polarity (positive & negative) correctly. See figure

7.3.6 Event Printer Port

Use DOT-MATRIX Printer to print the update event report.

7.4 Connecting the EXP-06E to a host

The connector – G, H, I connects a single EXP-06E to the host computer via RS-232C format. Multiple EXP-06E communicates with host from connector – F, E via RS-485 format. But the EXP-06E chain must communicate with host through an RS232/RS-485 converter.

7.4.1 Configuring the EXP-06E Jumpers

Configure EXP-06E jumpers JP4 & JP5 for the host communication format you are using. For host communication using the RS-232C communication using the RS-485 communication protocol, set jumpers JP4 & JP5 to 1-2 position.

7.4.2 RS-232C Connection

Table – Pin connection

EXP-06E Pin	Signal	DB25	DB9	Host Signal
I	Ground	7	5	Ground
H	Data Transmit	3	2	Data Receive
G	Data Receive	2	3	Data Transmit

7.4.3 Remote Modem Connection

Table – Pin connection (RS-232)

EXP-06E Pin	Signal	DB25	DB9	Host Signal
I	Ground	7	5	Ground
H	Data Transmit	2	3	Data Receive
G	Data Receive	3	2	Data Transmit
		4&5 Sort 6&20 Sort	4&6 Sort 7&8 Sort	

Table – Pin connection (RS-485)

Signal	DB25 (485 Converter)	DB9 (Modem)	Host Signal
Ground	7	5	Ground
Data Transmit	3	3	Data Receive
Data Receive	2	2	Data Transmit
	4&5 Sort 6&20 Sort	4&6 Sort 7&8 Sort	

7.4.4 Configuring the RS-485 Interface Card

RS-485 Interface Card is used to communicate PC and EXP-06E via RS-485 format. Make sure there are no other devices using COM3 and I/O address (03E8-03EF) in the PC before installation. If there is a device using COM3 already, readdress the port and address of this device.

1. Install the interface card into an ISA expansion slot on the PC motherboard.
2. The interface card connects totally up to 9 different input ports. To enable input port, short the related jumper. See the table – Pin connection.
3. Connect the RS-485 output on EXP-06E to the appropriate pin of the chosen input port in DB25. See the table – Pin connection.

7.4.5 Configure the RS-485 Converter (Model:ic485Ip-1F)

Table – Pin connection

EXP-06E Pin	Converter
E	2,4 Sort
F	1,3 Sort

7.5 Connection with Advanced Power Supply (Option)

The Power Supply Board provides uninterrupted power backup of EXP-06E. Refer to the table – External Device Connectors, the 220V AC filter protects the EXP-06E, preventing an unstable power e.g. Spark; affect the performance as IN/OUT card readers. One the left side of the PS-01, 12V DC input is designed to control power for electric strike door lock. Therefore, the activities of the electric strike door lock (lock / unlock) can be controlled by the EXP-06E. A separate power supply for the electric strike door lock is designed to prevent the lock drain the controller backup battery quickly when AC powers failure.

7.6. Configure Relay Output

To change the configuration of the Door Lock Relay Output, Programmable Relay Output and Alarm Relay Output to Normal Open or Normal Close, follow the jumper setting shown in the table – External Device Connectors (JP2, JP3, JP7)

7.7. Configure Alarm Relay

The alarm relay can be activated at the following events:

1. Break In Alarm

This is used to enable the break in signal of door. if the door is opened by other matters except door opening door release button or present card or key-in process, the alarm relay will be turned ON and a "alarm occurred" signal will be stored in memory of the access controller.

p.s. The user must enable the Break In Alarm at the Alarm Section in Software, and also connect the Door Sensor to the controller.

2. Door Open Alarm

This is used to define the period of door that allows to be opened. The period can be set from 1 to 99 second. 0 is disabled this function. If the door is opened out of this period, the alarm relay will be turned ON and a "alarm occurred" signal will be stored in memory of the access controller.

p.s. The user must input the time (sec) at the Door Open Alarm field in Software, and also connect the Door Sensor to the controller.

3. Duress Alarm

If the door is opened with key in the duress pin code, the alarm relay will be turned ON and a "alarm occurred" signal will be stored in memory of the access controller.

p.s. The user must enable the Duress Alarm jumper(JP8) in the controller in order to activate this function.

4. Invalid Card & PIN

If the entrance need to input pin code after the card presented, and the cardholder key in "WRONG CODE" for 7 times continuously. For security reason, the alarm relay will be turned ON and a "alarm occurred" signal will be stored in memory of the access controller.

7.8. Configure Other EXP-06E Options

Watch Dog : For keep looking up the event in the controller.

Default is Disable (Open) – JP15.

Duress Alarm : For activate the alarm when keyin the duress pin code.

Default is Disable (Open) – JP8.

Chain Ending : For set the controller as the end of the chain

Default is Disable (Open) – JP18.

12V DC : For turning ON/OFF the 12V DC input to the controller.

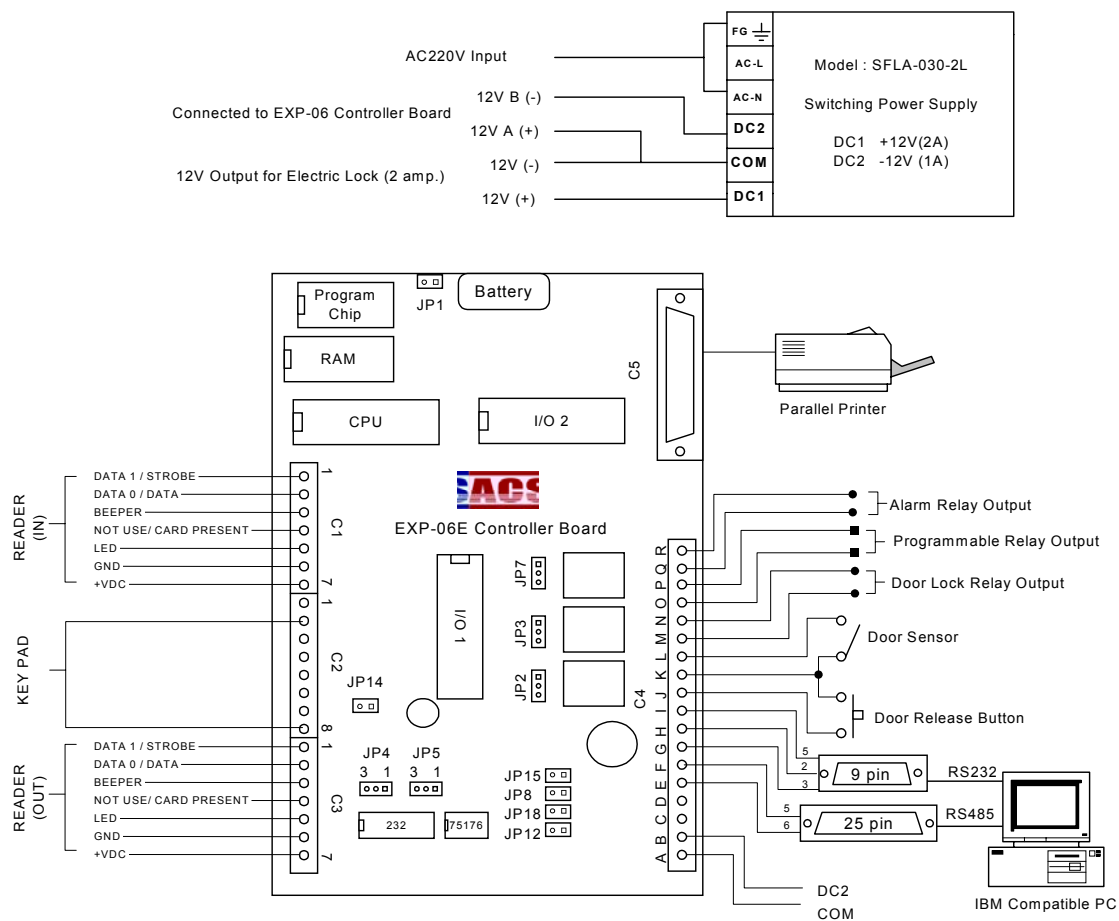
Default is ON (Short) – JP12.

5V/12V DC : For choosing 5V/12V DC output for card reader. – JP14

8. Specification

8.1 EXP-06E Access Controller

CPU	:	8031
Memory	:	32KB
Clock & Data Memory back-up battery	:	Non-charge 1 month backup during power failure
Communication Interface	:	RS232 and RS485 Converter type
Data Transfer Rate (Local & Remote)	:	9,600 bps
Input Voltage	:	AC 220 - 240V / 50 - 60Hz 12V AC / DC
Power Consumption	:	Approx. 8W - AC 220V - 240V Approx. 0.8A - 12V AC / DC
Temperature	:	0 - 40 degree Celsius
Humidity	:	20% - 80% RH



JP1		Sort Using Battery for Data Memory	JP15	Watch Dog	Sort	Open
JP4 & JP5		Enable RS485	JP8	Duress Alarm	Active	Deactive
JP4 & JP5		Enable RS232	JP18		Disable	Enable
JP16		5VDC Output for Reader Supply	JP12	12VDC	--	--
		12VDC Output for Reader Supply			ON	OFF
JP2		Door Lock Relay Output (NO)	RS232 Communication			
		Door Lock Relay Output (NC)	C4	9 PIN	25 PIN	
JP3		Programmable Relay Output (NO)	G	3	2	
		Programmable Relay Output (NC)	H	2	3	
JP7		Alarm Relay Output (NO)	I	5	7	
		Alarm Relay Output (NC)	RS485 Communication			
			C4	RS485/RS232 Converter		
			E	RS485 (-)		
			F	RS485 (+)		